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Applications for Membrane Distillation

Status: Pending

Category: 1 Water Filtration

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Until recently membrane distillation was confined to small scale laboratory experiments that demonstrated membrane distillation (MD) can be used to produce very high quality clean distillate water. Aquastill is maturing membrane distillation from a laboratory prototype to a commercially viable product that can cost-effectively produce high quality clean water.

In the MD system a hydrophobic (non-wetting) membrane separates warm seawater flowing in one direction from cooler distillate flowing in the opposite direction. The difference in temperature results in a vapor pressure difference across the membrane pores resulting in the distillate flowing from the warmer side to the colder side. The process does not require pressure for separation but only for pumping the liquids past the membrane. By using waste heat, MD becomes very cost-effective compared to other desalination technologies. Pilot tests performed over the past several years have demonstrated that compared to RO, MD requires a limited amount of pretreatment and can handle TDS levels in excess of 140,000 to provide pure water.

This presentation provides an update on the work that was presented at the May 2009 AFS Annual Meeting in Minnesota. It will also discuss a number of applications where MD is currently finding applications. These applications include uses in the food and beverage industry, industrial processes and concentrate management. In these industrial cases removing water from the product is the main issue, producing pure water is the byproduct.

Bio

Marten is focused on strategy, business development and financial management of hi-tech and "green" technology companies. He assists with business valuation, deal negotiation, investor due diligence and assesses exit strategy options. He was a management consultant for PricewaterhouseCoopers and BLMC where he focused on implementing new strategic processes for the hi-tech industry. Marten has an MBA from the Tuck School of Business at Dartmouth College and a Ph.D. in Electrical Engineering from Virginia Tech.